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From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)Applicant's or agent's file reference
see form PCT/ISA/220FOR FURTHER ACTION
See paragraph 2 belowInternational application No.
PCT/US2004/038816International filing date (day/month/year)
19.11.2004Priority date (day/month/year)
19.11.2003International Patent Classification (IPC) or both national classification and IPC
INV. G06F1/16 H04M1/02Applicant
QUALCOMM INCORPORATED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1(b)(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☐ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☒ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

see separate sheet

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 12-19,22-28

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 24 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

- ☒ the claims, or said claims Nos. 24 are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 12-19,22-28
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

- ☐ has not been furnished
- ☐ does not comply with the standard

the computer readable form

- ☐ has not been furnished
- ☐ does not comply with the standard

- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

- ☐ See separate sheet for further details

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☒ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-10,11,20-21

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10,20-21
	No: Claims	11
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10,11,20-21
Industrial applicability (IA)	Yes: Claims	1-10,11,20-21
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/038816

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item II

Priority

The document D3: WO2004/049150 has been published on 10.06.04, before the second (latest) priority date 29.07.04 claimed for the present application , an before the filing date 19.11.04 of the present application, but after the first (earliest) priority date 19.11.03 claimed for the present application.

The examination of the priority documents (according to the PCT Guidelines, 6.09, following which "for the priority date to be allowed, the subject matter of the claim must be explicitly or inherently disclosed in the priority document") shows that :

- the subject matter of claims 1-3, 7-8, 11, 18-23 and 27-28 of the present application is supported by the content of the first (earliest) priority document: the first priority claimed is therefore valid and the reference date for the subject-matter of these claims is 19.11.03 ; and that
- conversely, the subject matter of claims 4-6, 9-10, 12-17 and 24-26 of the present application is not fully supported by the content of the first (earliest) priority document: the first priority claimed is therefore not valid and the reference date for the subject-matter of these claims is 19.11.04 .

Consequently, D3 forms part of the prior art for the subject matter of claims 4-6, 9-10, 12-17 and 24-26 of the present application.

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Independent Claim 24 is self contradictory, in that the third component layer is defined as:

- "movably connected to one of the first component layer and the second component layer" and

- "movable in a second direction relative to the second component layer to expose a second set of functional components and activate a second operational mode".

This combination is neither clear nor supported by the description; hence

"no meaningful opinion can be formed on the questions of novelty, inventive step, or industrial applicability of the claimed invention", cf. PCT Guidelines 17.31.

Re Item IV

Lack of unity of invention

1. The separate inventions/groups of inventions are:

Claims 1-10, 11, 20-21

An electronic device, comprising: a first module layer movable in a first direction; a second module layer movably connected relative to the first module layer; and a third module layer movably connected relative to the second module layer and movable in a second direction. And a method for providing a versatile user interface for an electronic device, the device including a display and a plurality of input means, each deployable in a different direction, the method comprising: deploying one of a plurality of input means; detecting which one of the plurality of input means is deployed; and orienting information presented on the display based on the deployed input means.

Claims 12-15

An electronic device, comprising: a first module layer movable in a first direction; a second module layer movably connected relative to the first module layer; and a third module layer movably connected relative to the second module layer and movable in a second direction, wherein the first module layer comprises a first set of functional components, the second module layer comprises a second set of functional components and the third module layer comprises a third set of functional components, and wherein the device comprises a first operational mode utilizing the first set of functional components, a second operational mode utilizing the second set of functional components and a third operational mode utilizing the third set of functional components, wherein each operational mode is actuated based on a predetermined relative position of the first module layer, the second module layer and the third module layer.

Claims 16-17

An electronic device, comprising: a first module layer movable in a first direction; a second module layer movably connected relative to the first module layer; and a third module layer movably connected relative to the second module layer and movable in a second direction, further comprising a first connector connecting the first module layer and the second module

layer, wherein the first connector allows at least linear movement substantially parallel to the first direction.

Claims 18

An electronic device, comprising: a first module layer movable in a first direction; a second module layer movably connected relative to the first module layer; and a third module layer movably connected relative to the second module layer and movable in a second direction, wherein the first direction and the second direction are substantially perpendicular.

Claims 19

An electronic device, comprising: a first module layer movable in a first direction; a second module layer movably connected relative to the first module layer; and a third module layer movably connected relative to the second module layer and movable in a second direction, further comprising a communications module having an input and an output respectively for receiving and transmitting a wireless signal.

Claims 22-23

An electronic device, comprising: a first module layer movable in a first direction; a second module layer movably connected relative to the first module layer; and a third module layer movably connected relative to the second module layer and movable in a second direction, wherein the second module layer further comprises a first input mechanism exposable when the first module layer moves in the first direction relative to the second module layer, and wherein the third module layer further comprises a second input mechanism exposable when the third module layer moves in the second direction relative to the second module layer.

Claims 24

A portable electronic device, comprising: a first component layer movable in a first direction; a second component layer having a first set of functional components, the second component layer movably connected relative to the first component layer such that movement of the first component layer in the first direction exposes the first set of functional components and activates a first operational mode; and a third component layer having a second set of functional components, the third component layer movably connected to one of the first component layer and the second component layer, the third component layer movable in a second direction relative to the second component layer to expose a second set of functional

components and activate a second operational mode.

Claims 25-26

A method of controlling relative movement between movable layers of an electronic device, comprising: movably connecting a first module layer to a second module layer having a first functional component such that a relative movement of the first module layer in a first direction exposes the first functional component; and movably connecting the second module layer to a third module layer having a second functional component such that a relative movement of the third module layer in a second direction exposes the second functional component. preventing movement of the third module layer in the second direction during movement of the first module layer in the first direction.

Claims 27-28

A method for providing a versatile user interface for an electronic device, comprising: exposing a first set of functional components on a second module layer movably connected to a first module layer, where the first set of functional components is associated with a first operational mode of the electronic device; and exposing a second set of functional components on a third module layer movably connected to the second module layer, where the second set of functional components is associated with a second operational mode of the electronic device.

2. The reasons for which the 9 inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

2.1. The subject-matter of independent claim 11 lacks novelty (see the grounds for this objection).

2.2. Since the subject-matter of independent claim 11 constitute the kernel of common technical features between all (groups of) inventions, and since this kernel is not novel, the requisite unity of invention (Rule 13.1 PCT) no longer exists inasmuch as a technical relationship involving one or more of the same or corresponding special technical features in the sense of Rule 13.2 PCT does not exist between the subject-matter of the 9 groups of dependent claims, which concern different technical aspects, are directed at different objectives and could be applied independently :

Claims 1-10, 11, 20-21: orienting information presented on the display based on the deployed input means.

Claims 12-15: each operational mode is actuated based on a predetermined relative position of the first module layer, the second module layer and the third module layer.

Claims 16-17: the first connector allows at least linear movement substantially parallel to the first direction.

Claims 18: the first direction and the second direction are substantially perpendicular.

Claims 19: comprising a communications module having an input and an output respectively for receiving and transmitting a wireless signal.

Claims 22-23: the second module layer further comprises a first input mechanism exposable when the first module layer moves in the first direction relative to the second module layer, and the third module layer further comprises a second input mechanism exposable when the third module layer moves in the second direction relative to the second module layer.

Claims 24: movement of the first component layer in the first direction exposes the first set of functional components and activates a first operational mode; and, the third component layer movable in a second direction relative to the second component layer to expose a second set of functional components and activate a second operational mode.

Claims 25-26: preventing movement of the third module layer in the second direction during movement of the first module layer in the first direction.

Claims 27-28: exposing a first set of functional components on a second module layer movably connected to a first module layer, where the first set of functional components is associated with a first operational mode of the electronic device; and exposing a second set of functional components on a third module layer movably connected to the second module layer, where the second set of functional components is associated with a second operational mode of the electronic device.

2.3. In conclusion, the groups of claims are not linked by common or corresponding special technical features and define 9 different inventions not linked by a single general inventive concept.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following document/s/:

- D1: US-B1-6 353 529 (CIES THOMAS) 5 March 2002 (2002-03-05)
- D2: WO 01/77786 A (DANGER RESEARCH, INC) 18 October 2001 (2001-10-18)
- D3: WO 2004/049150 A (DANGER, INC) 10 June 2004 (2004-06-10)
- D4: US 2001/048589 A1 (BRANDENBERG CARL BROCK ET AL) 6 December 2001 (2001-12-06)
- D5: US-B1-6 397 078 (KIM YOUNG S) 28 May 2002 (2002-05-28)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 11 is not new in the sense of Article 33(2) PCT.

2.1. The document D1 discloses (the references in parentheses applying to this document, see the passages cited in the search report):

An electronic device, comprising: a first module layer movable in a first direction; a second module layer movably connected relative to the first module layer; and a third module layer movably connected relative to the second module layer and movable in a second direction (cf. the three or more panels hinged together in the device of D1, see for example Fig. 11).

Hence independent system claim 11 lacks novelty with respect to the disclosure of D1.

2.2. It is noted that the same novelty objection to claim 11 can be raised based on either one of D4 and D5.

3. The present application does not meet the requirements of Articles 33(1) and (3) PCT, because the subject-matter of independent claim 1 does not involve an inventive step, for the following reasons:

When starting from either one of D1, D4 and D5, which all disclose deploying various input means in different direction, the skilled person aiming at improving the use of the display screen according to the application or mode corresponding to the deployed input means

(e.g. phone keypad for the phone function, full alphanumeric keypad for PDA function) would have evidently applied the feature described in D2, namely that the display is inverted (i.e. orientation of the displayed information is changed) responsive to the deployed input means (see claims 7-8, 14-15, 20-21), arriving thereby at the subject matter of claim 1 without exercising an inventive step.

4. Dependent claims 2-10 and 20-21 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:

Claims 2-6: various types of keyboard would be used by the skilled person, according to the need, based on his/her general knowledge and the disclosure of D1-D5;

Claims 7-8: portrait and landscape are well known display orientations which belong to the straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill:

Claims 9-10, as far as these claims are understandable (see the clarity objection to claims 9-10, where the terms "vertical" and "horizontal" are not defined): sliding (or "translating") is disclosed in D5 as one of the obvious alternatives of movement used between modules of an electronic device, in particular for deploying an input means;

Claims 20-21: see item 3. above.

Re Item VII

Certain defects in the international application

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1-D5 is not mentioned in the description, nor is/are this/these document/s identified therein.

2. Independent claims 1 and 11 are not in the two-part form in accordance with Rule 6.3(b)

PCT, with those features known in combination from the prior art (see the closest document) being placed in a preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT).

When filing amended claims the applicant should take care of this requirement. If, however, the applicant is of the opinion that the two-part form would be inappropriate, then reasons therefor should be provided in the letter of reply.

In addition, the applicant should ensure that it is clear from the description which feature/s of the subject-matter of the claim/s are known from documents D1-D5 (see the PCT Guidelines PCT/GL/3 III, 2.3a).

When filing amended claims the applicant should at the same time bring the description into conformity with the amended claims.

3. In order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, the applicant is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT).

If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed. The applicant is requested to file amendments by way of replacement pages in the manner stipulated by Rule 66.8(a) PCT. In particular, fair copies of the amendments should be filed preferably in triplicate.

4. Moreover, the applicant's attention is drawn to the fact that, as a consequence of Rule 66.8(a) PCT the examiner is not permitted to carry out any amendments under the PCT procedure, however minor these may be.

5. Finally, the applicant is invited to indicate in the letter of reply the difference of the subject-matter of the new claim vis-à-vis the state of the art and the significance thereof. In particular, further details of its advantages or of the problem it solves, and for which there is no basis in the application as filed, should be confined to the letter of reply rather than be incorporated into the application.

Re Item VIII

Certain observations on the international application (clarity, Art. 6 PCT)

1. Claim is not clear and not fully supported by the description, because it does not define precisely the steps of the method: claim 1 does not specify that
- the step of deploying is executed by the user, as understood from the description;
2. The terms "vertical" and "horizontal" as used in claims 1 and 22 are unclear, because they are not precisely defined in the claim itself; moreover, since the device is portable, it can be held by the user in any position, and any reference to "vertical" and "horizontal" is therefore indefinite.
3. The features of the claim/s are not provided with reference signs placed in parentheses, relating to the drawings to increase their intelligibility(Rule 6.2(b) PCT).
3. The /vague and imprecise/ statement in the description on the last page , last paragraph imply that the subject-matter for which protection is sought may be different to that defined in the description ("not limited to ..."), thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them (see also the PCT Guidelines, III-4.3a).
Any such statement should be deleted.